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A Study to Evaluate the Effectiveness of STP on Knowledge and Attitude Regarding Menstrual Cups and Its Usage Among Students at Selected Nursing Colleges in Kolar

Kavitha. P[1], Aswathy.GA[2]

[1]Assistant Professor, Obstetrics And Gynecology,Sri Devaraj Urs College Of Nursing.
[2]Assistant Professor, Obstetrics And Gynecology, Mount Carmel college of nursing

Abstract:
Introduction: A menstrual cup is a reusable feminine hygiene product made from medical-grade materials, designed to collect menstrual fluid. It offers an eco-friendly and cost-effective alternative to pads and tampons and can be worn for up to 12 hours. Research on knowledge and attitudes toward menstrual cups helps identify barriers to acceptance, cultural beliefs, and factors influencing its adoption, guiding educational interventions and improved menstrual hygiene management.
Aim of the study: To assess the knowledge and attitude regarding menstrual cup among **nursing students in selected colleges** at Kolar.
Material and Method: A **Pre-experimental study was** carried out on 220 nursing students of Sri Devaraj Urs College of Nursing, Kolar. Non-probability convenience sampling method was used to select samples. Study was conducted from 11th March to 27th July'2024 using structured knowledge questionnaire attitude scale was used for data collection. Moreover, study was analysed by using descriptive and inferential statistics.
Result: The study included **220 nursing students** from Sri Devaraj Urs College of Nursing, Kolar. A **Structured Teaching Program (STP)** was implemented to assess its effectiveness in improving knowledge and attitude regarding menstrual cups. The **mean pre-test knowledge score** was **60 (SD = 12.04)**, which significantly increased to **85.91 (SD = 7.00)** in the post-test (**t = 27.59, p < 0.0001**). Similarly, the **attitude score improved** from **2.22 (SD = 0.92) to 3.63 (SD = 0.45)** (**t = 20.42, p < 0.0001**). The findings indicate a **statistically significant improvement** in both knowledge and attitude following the STP intervention.
Conclusion: The study found that a **Structured Teaching Program (STP) significantly improved nursing students' knowledge and attitudes** on menstrual cups. Educational interventions are effective in promoting **menstrual health awareness** and sustainable practices.

KEYWORDS: Knowledge, Attitude, Menstrual Cup and STP

Introduction:

A menstrual cup is a reusable feminine hygiene product that has gained significant attention in recent years as a sustainable alternative to traditional menstrual products like tampons and pads. Made primarily

from medical-grade silicone, latex, or thermoplastic elastomers, menstrual cups are designed to be inserted into the vagina to collect, rather than absorb, menstrual fluid. Their bell-shaped form and flexible structure allow them to create a seal with the vaginal walls, which effectively prevents leakage during use.

The menstrual cup represents a crucial innovation in the landscape of menstrual health management, providing a long-lasting, cost-effective, and environmentally friendly option for individuals who menstruate. While disposable products like tampons and pads have been the predominant choice for decades, they generate significant waste and involve recurring expenses. In contrast, menstrual cups can last for several years with proper care, significantly reducing both the environmental impact and the financial burden associated with menstruation.

The adoption of menstrual cups can play a crucial role in addressing menstrual health equity and advancing gender equality. By providing a reliable, long-term solution to menstrual management, menstrual cups can reduce the financial barriers associated with menstruation and help mitigate period poverty—an issue that disproportionately affects women and girls in low-resource settings. Furthermore, the increased mobility and comfort provided by menstrual cups enable individuals to participate more fully in educational, professional, and social activities without the disruption of menstruation-related concerns.

The menstrual cup is not just a product; it is part of a broader movement towards sustainable and inclusive menstrual health management. Its potential to address economic, environmental, and health-related issues positions it as a critical tool in promoting menstrual equity and supporting the global effort to achieve Sustainable Development Goals (SDGs), particularly those related to health, gender equality, and sustainable consumption. The transition towards more sustainable menstrual products like menstrual cups is an important step in reshaping societal attitudes toward menstruation and empowering individuals who menstruate with more choices in managing their reproductive health.

Statement of the problem

A study to evaluate the effectiveness of STP on knowledge and attitude regarding menstrual cups and its usage among students at selected nursing colleges in Kolar.

Objectives:

1. To assess the preexisting level of knowledge and attitude regarding menstrual cups and its usage by using structured questionnaire
2. To evaluate the effectiveness of STP on knowledge and attitude regarding menstrual cups and its usage among students.
3. To determine the association between knowledge and attitude scores with selected socio-demographic variables of students.

Materials Methods:

The main aim of the study was to assess the knowledge and attitude regarding menstrual cups among nursing students of SDUCON, Tamaka, Kolar. The research design selected for the study was a pre-experimental study with a one-group pre-test-post-test design. The knowledge and attitude of the nursing students regarding menstrual cups were assessed using a structured knowledge questionnaire and an Attitude Rating Scale (5-point Likert scale).

Formal permission was obtained from the Institutional Ethics Committee (IEC) of SDUCON and from the concerned authorities of the nursing college. The study was conducted among 220 nursing students, who

were selected using a non-probability convenience sampling technique.

RESULTS

Socio Demographic Data

Statistical package of social science software (SPSS16.0) was used for statistical analysis of data. Frequency, mean, percentage tests were applied.

Section-A: Description of Socio demographic characteristics.

Table 1: - Socio-demographic characteristics' frequency and percentage distribution(n=220)

SL No	Background Variables	Frequency (n)	Percentage %
1	Age		
	a.<17	0	
	b.18-20	109	49.5%
	c.>21	111	50.5%
2	Course		
	a.B.Sc Nursing	198	90%
	b.GNM nursing	22	10%
3	Batch		
	a.1st year	100	45.4%
	b.2nd year		
	c.3rd year	22	10%
	d.4th year	98	44.5%
4	Religion		
	a.Hindu	86	39.1%
	b.Christian	130	59.1%
	c.Muslim	04	1.8%
	d.others	0	
5.	Family type		
	a.Nuclear family	176	80%
	b.Macro Family	0	
	c.Joint Family	44	20%
6.	Monthly income		
	a.≤10000/rs	2	0.9%
	b.11000-20000/	20	10%
	c.21000-30000/	42	19.1%
	d.≥31000/	156	70%
7.	Previous knowledge		
	a.Yes	204	92%
	b.No	16	7.3%
8.	Source of information		
	a.Friends	133	60.45%

	b.Family	69	31.4%
	c.Relatives	12	5.45%
	d.Mass media	06	02.7%

Table 1 shows the sociodemographic characteristics of the respondents. Out of 220 participants, half of the sample (111 or 50.5%) were aged over 21 years. The majority of the respondents were B.Sc. Nursing students, with 198 (90%) enrolled in this course. Most participants came from nuclear families (178 or 80%). The data indicated that the majority of participants were from the 1st and 4th years of the B.Sc. Nursing program, with 100 (45.4%) and 98 (44.5%) students, respectively. A significant portion of the participants (156 or 70%) had parents with a monthly income of more than ₹31,000. Most participants (204 or 92.7%) had some previous knowledge about menstrual cups, and the majority (133 or 60.45%) reported acquiring this knowledge from mass media.

Section-B: Analysis of knowledge regarding use of menstrual cups among female nursing students. Table

2: Assessment of knowledge level regarding menstrual cup among nursing students

Knowledge Level	Pre-test		Post-test	
	frequency	%	frequency	%
Poor Knowledge (<50%)	20	9.0	00	00
Moderate Knowledge (50-75)	192	87.37	18	8.2
Adequate knowledge (>75%)	08	3.63	202	91.8
TOTAL	220	100	220	100

The Table 2 shows a significant improvement in participants' knowledge after the test. Before the test, 9% had poor knowledge, 87.37% had moderate knowledge, and 3.63% had adequate knowledge. After the test, no participants had poor knowledge, 8.2% had moderate knowledge, and 91.8% had adequate knowledge, indicating a major increase in knowledge levels.

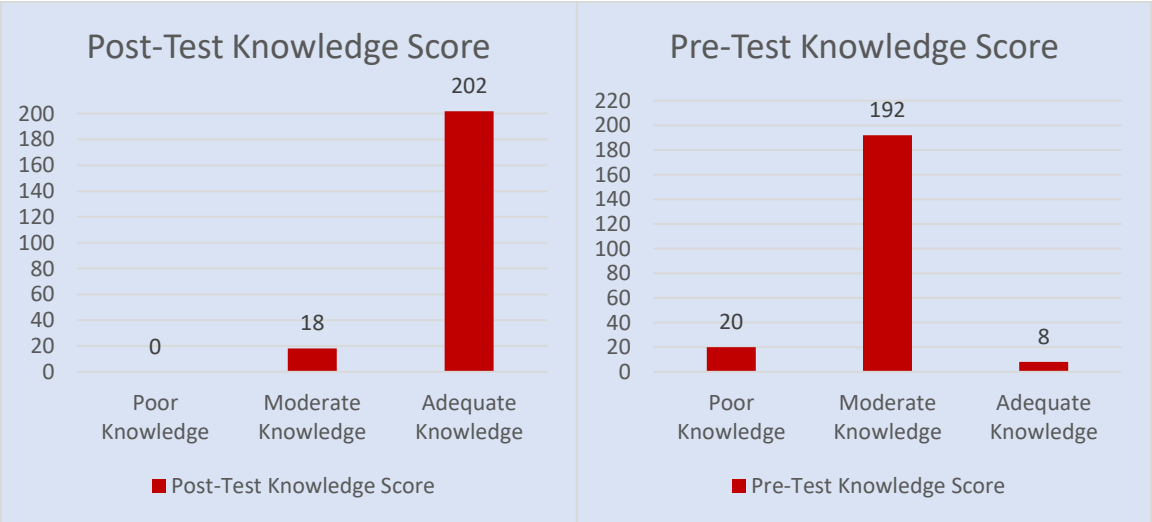

Table 3 : Assessment of attitude

Sl No	Statements	Total pre-test Score	Mean Value	Total Post-test Score	Mean Value
	Positive Statements				
1.	It is easy and convenient to use	560	2.54	762	3.46
2.	Menstrual cup suit for heavy load work	327	1.48	761	3.45
3.	Using of menstrual cup is economically benefited	617	2.80	919	4.17
4.	Will you use in the menstrual cup in the future	528	2.4	808	3.57
5.	A menstrual cup is a safe device	717	3.25	908	4.12
6.	Lack of awareness is prevent women from using menstrual cup	616	2.8	937	4.25
7.	The menstrual cup will lead to the loss of virginity	410	1.86	910	4.13
8.	Will you recommend menstrual cup to others	527	2.39	812	3.69
9.	If a menstrual cup is made available, will you use it	628	2.85	701	3.18
	Negative Statement				
10	It may get leak when sleeps	217	0.98	692	3.14
11	The menstrual cup would expand the vagina and deform the reproductive parts	335	1.52	819	3.72
12	The blood will flow back into the uterus when the cup is full	283	1.28	905	4.11
13	Menstrual cup will cause any pain into the vagina	551	2.50	818	3.71
14	Menstrual cup will reduce fertility	912	4.14	954	4.33
15	It can be used during postpartum	312	1.41	762	3.46

The table 3 presents data from a pre- and post-test assessment regarding the use and perception of menstrual cups. It includes both **positive** and **negative** statements, with corresponding **total scores** and **mean values** for both the pre-test and post-test

The table presents pre- and post-test scores for various statements about menstrual cups. Positive statements show a significant increase in mean scores post-test, indicating a more favourable perception of menstrual cups. Negative statements, on the other hand, show a decrease or stabilization in mean scores, suggesting a reduction in concerns or misconceptions. Overall, the data reflects a positive shift in participants' attitudes toward menstrual cups after the intervention.

Table 3: Total Mean Value

Attitude Scale	Pre-Test		Post-Test	
	Mean Value	SD	Mean Value	SD
Positive Statement	2.48	0.54	3.53	0.47

Negative Statement	1.97	1.18	3.74	0.43
Overall attitude Mean	2.22	**0.92**	3.63	0.45

The positive statement mean value increases to **3.53**, with a lower standard deviation of **0.47**, reflecting a stronger and more consistent positive perception of menstrual cups after the intervention.

The negative statement mean increases to **3.74**, and the standard deviation decreases to **0.43**, showing a significant reduction in negative perceptions and greater agreement or comfort with the idea of menstrual cups.

The decrease in standard deviation for both positive and negative statements suggests that the participants' opinions became more consistent after the intervention, with an overall trend toward greater acceptance and reduced concerns.

The data presented in Table 02 depicts that 46(76.6%) had favourable and 14(23.4%) had unfavourable attitude towards menstrual blood banking among student nurse of selected institutions.

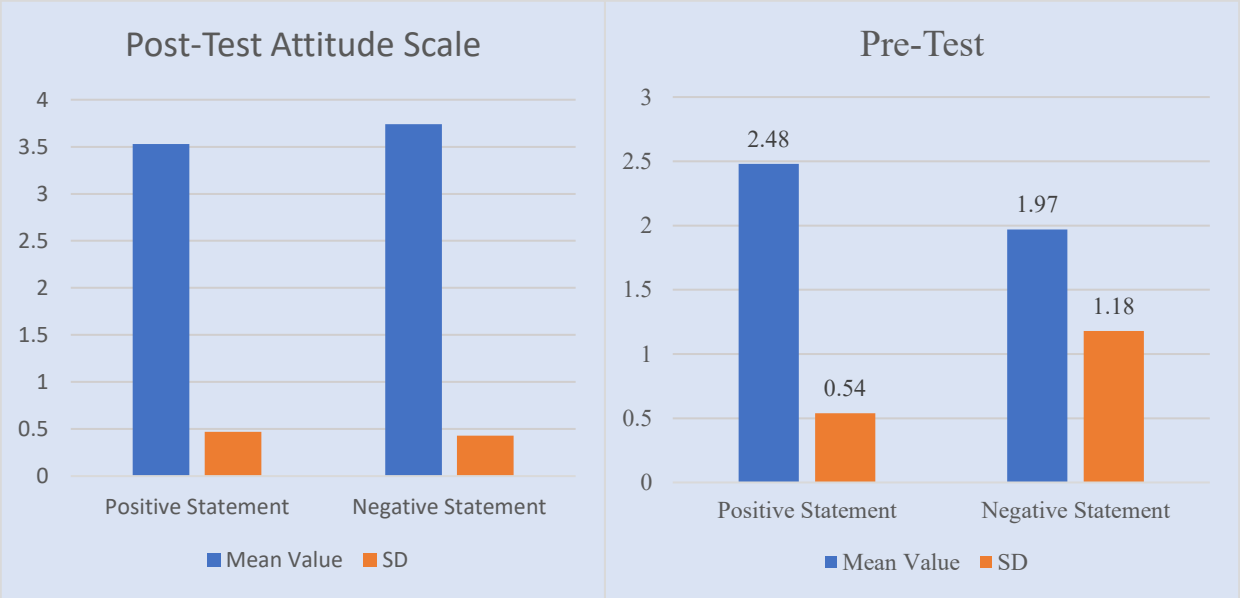

Table 4: Association between knowledge score with Demographic Variables

SL No	Nursing Students		Knowledge Grade		Chi square Value	DF	P-Value
			Moderately Knowledge	Adequate Knowledge			
01	Age	a)<17	Nil	Nil	51.2	1	>0.0001
		b)18-20	10	10			
		c)>21	08	192			
02	Course	a)B.sc(N)	02	196	135.56	1	>0.0001
		b)GNM	16	06			
03	Batch	a)I Year	18	82	23.52	1	>0.0001
		b)II Year	-	-			
		c)III Year	-	22			
		d)IV Year	-	98			

04	Religion	a)Hindu	06	80	0.36	1	0.54
		b)Christian	12	118			
		c)Muslim	-	04			
		d)Others	-	-			
05	Family Type	a)Nuclear	03	173	49.14	1	>0.0001
		b)Macro	-	-			
		c)Joint	15	29			
06	Monthly Income	a)40,000	02	-	69.9	1	>0.0001
		b)11,000-20,000	10	10			
		c)21,000-30,000	06	36			
		d)>3,10,000	-	156			
07	Source of Data	a)Friends	03	130	16.50	1	>0.0001
		b)Family	09	60			
		c)Relatives	-	12			
		d)Mass Media	06	-			

Table 5: Association between Attitude score with Demographic Variables

SL No	Nursing Students		Attitude Score			Chi square Value	DF	P-Value
			Negative Attitude 1.0-2.5	Neutral Attitude 2.6-3.5	Positive Attitude 3.6-5.0			
01	Age	a)<17	-	-	-	0.182	1	0.66
		b)18-20	-	100	09			
		c)>21	-	100	11			
02	Course	a)B.sc(N)	-	-	198	94	1	>0.0001
		b)GNM	-	10	12			
03	Batch	a)I Year	-	10	90	12.57	1	>0.0004
		b)II Year	-	-	-			
		c)III Year	-	-	22			
		d)IV Year	-	-	98			
04	Religion	a)Hindu	-	06	80	9.09	1	0.0026
		b)Christian	-	30	100			
		c)Muslim	-	-	04			
		d)Others	-	-	-			
05	Family Type	a)Nuclear	-	16	160	0.00	1	1.00
		b)Macro	-	-	-			
		c)Joint	-	04	40			
06	Monthly Income	a)40,000	-	-	02	2.17	1	0.14
		b)11,000-20,000	-	-	20			
		c)21,000-30,000	-	02	40			

		d)>3,10,000	-	16	140			
07	Source of Data	a)Friends	-	-	133	93.16	1	>0.0001
		b)Family	-	-	69			
		c)Relatives	-	02	10			
		d)Mass Media	-	06	-			

Evaluate the effectiveness of STP on knowledge and attitude regarding menstrual cups and its usage among students.

Table 6 Total knowledge Attitude mean score

SL NO	Variables	Pre-Test	SD	Post-test	SD
01	**Knowledge Mean Score**	60	12.04	85.91	7.00
02	**Attitude Mean Score**	2.22	0.92	3.63	0.45

Table 7: Comparison of Pre-test and Post-test knowledge and attitude score

Variables	Mean	SD	Mean Diff	Paired t Value	P value
Pre-test knowledge	60	12.04	25.91	27.59	>0.0001
Post-test knowledge	85.91	7.00			
Pre-test Attitude	2.22	0.92	1.41	20.42	>0.0001
Post-test Attitude	3.63	0.45			

For **df ≈ 219** at **α = 0.05 (two-tailed)**:

- The **critical t-value ≈ ±1.97**

Calculated **t-value** is greater than **1.97** , the difference is **statistically significant p>0.05**.

The Table 7 indicate a **significant improvement** in both knowledge and attitude after the intervention. The low p-values (**p < 0.05**) confirm that these differences are **statistically significant**

Discussion

The present study aimed to evaluate the **effectiveness of a Structured Teaching Program (STP) on knowledge and attitude regarding menstrual cups and their usage** among nursing students in selected colleges in Kolar. The study assessed pre-existing knowledge and attitude levels, measured the impact of STP, and examined associations with selected socio-demographic variables. The findings provide valuable insights into the role of educational interventions in improving menstrual health awareness among nursing students.

Key Findings and Interpretation

The results revealed a **significant improvement in both knowledge and attitude** following the STP intervention. The **mean pre-test knowledge score** was **60 (SD = 12.04)**, which significantly increased to

85.91 (SD = 7.00) in the post-test, with a **mean difference of 25.91**. The **paired t-test value was 27.59 ($p < 0.0001$)**, indicating a statistically significant enhancement in knowledge. Similarly, the **attitude score improved from 2.22 (SD = 0.92) to 3.63 (SD = 0.45)**, with a **mean difference of 1.41** and a **t-value of 20.42 ($p < 0.0001$)**. These findings confirm that the STP was effective in enhancing students' knowledge and fostering a more positive attitude towards menstrual cup usage.

The results align with previous studies that have explored the effectiveness of **educational interventions on menstrual health awareness**. A similar study conducted in Ahmedabad found that an educational program significantly improved adolescent girls' knowledge and attitudes regarding menstrual cups, emphasizing the importance of structured health education in promoting women's health. Another study at **Sharda University** assessed knowledge and attitude among 150 female nursing students, revealing that **56% had average knowledge, 35% had good knowledge, and 67.3% held a favorable attitude toward menstrual cups**. These findings indicate that while awareness is growing, targeted educational programs are necessary to enhance understanding and acceptance of menstrual cups, particularly in healthcare students who will play a role in menstrual health education.

Strengths and Limitations

One of the key strengths of this study is that it focused on **nursing students**, who are future healthcare professionals and can further disseminate knowledge about menstrual cups in their practice. Additionally, the **use of a structured teaching program (STP)** ensures a **standardized and systematic approach** to delivering information, increasing its effectiveness. The **large sample size (N = 220)** strengthens the reliability of the findings.

However, the study has some limitations. It was **conducted in selected nursing colleges in Kolar**, limiting the generalizability of the findings to a broader population. Additionally, the study **assessed immediate post-test improvements** but did not include a follow-up to evaluate knowledge retention and long-term attitude changes. Future research should consider **longitudinal studies** to determine the sustained impact of educational interventions on menstrual health awareness.

Implications and Recommendations

The findings of this study highlight the **importance of menstrual health education** in improving awareness and acceptance of menstrual cups. Given the significant improvement in knowledge and attitude scores, **Structured Teaching Programs (STPs) should be integrated into nursing curricula** to ensure that future healthcare professionals are well-equipped to educate others about sustainable menstrual hygiene practices.

Additionally, public health initiatives should focus on **breaking myths and misconceptions** surrounding menstrual cups through community-based interventions. Nursing students, as healthcare educators, can play a vital role in **advocating for menstrual cup adoption**, emphasizing their **cost-effectiveness, environmental benefits, and health advantages** over conventional menstrual products. Future research should explore **the barriers to menstrual cup adoption** and assess the long-term impact of educational interventions across diverse populations.

Conclusion

The study demonstrated that a **Structured Teaching Program (STP) significantly improved nursing students' knowledge and attitudes regarding menstrual cups**. The statistically significant findings

emphasize the need for **education-based interventions** to enhance menstrual health awareness, particularly among healthcare students. Expanding such programs to **larger and more diverse populations** can contribute to **greater acceptance and usage of menstrual cups**, promoting **sustainable and hygienic menstrual management practices**.

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